A STUDY ON MODELING INVESTORS BEHAVIOR TOWARDS ONLINE SHARE TRADING, COIMBATORE

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INTRODUCTION

In conventional financial theory, investors are assumed to be rational wealth maximisers, following basic financial rules and basing their investment strategies purely on the risk-return consideration. However, in practice, the level of risk investors are willing to undertake is not the same, and depends mainly on their personal attitudes to risk. Research in behavioral finance has developed rapidly in recent years and provides evidence that investors’ financial decisions are also affected by internal and external behavioral factors.

Internet, the new medium that has emerged as a result of convergence between telecommunication and computers, is revolutionizing the way business is done and is making inroads into every conceivable area of business activity. The online financial services offered by banks and financial firms have been changed with the emergent of internet. Internet-based stock trading is where the issuers of securities, intermediaries, service providers and investors are selling and dealing securities services on the internet. Investors would now be able to acquire or sell shares or stocks from anywhere by just using internet-based order submission protocols.

With the increase in online offerings, the need to predict behavioral intentions of consumers has also increased. This study will provide information on factors that influence and affect investor’s intention to use online stock trading. In addition, the result of the study could serve as a guideline for online stock broking organizations in understanding the factors...
and programs that needs to be instilled to increase online stock trading among current retail investors and future investors.

**THEORY OF PLANNED BEHAVIOR (TPB)**

The theoretical model employed in this research is based on theory of planned behavior (TPB) (Ajzen, 1991). The TPB (Ajzen, 1991) is an extension of theory of reasoned action (TRA) and was established to answer the limitation in the TRA (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980). TPB deals with behavior where individual have incomplete faculty of using one’s will or situation where they have incomplete control of their behavior (Ajzen, 1985, 1991, 2002). An extension of TRA, TPB is composed of attitude towards the behavior, social factor called subjective norm and an added variable which is the degree of perceived behavioral control (Ajzen, 1985, 1991, 2002). PERCEIVED BEHAVIOURAL CONTROL is the additional construct that was added to solve the limitations in TRA (Ajzen, 1985, 1991, 2002).

**REVIEW OF LITERATURE**

Empirical studies over the past three or four decades. For example, Potter (1971) identifies six factors: dividends, rapid growth, investment for saving purposes, quick profits through trading, professional investment management and long-term growth, that affect individual investors (ININ)’ attitudes towards their investment decisions.

Baker and Haslem (1973) argue that investors are primarily concerned with expectations about the future, considering earnings projection and historical data to be of high interest to investors. On the other hand, research by Lee and Tweedie (1975a, b, 1976, 1977) reveals that the general public faces problems in understanding financial reporting in the corporate sector. Blume and Friend (1978) provide evidence that both price and earnings volatility are the primary measures of risk employed by ININ, while Schlarbaum et al. (1978) compare ININs’ performance with that of professional fund managers and find that the former exhibit considerable skill in their investment decision making.

Lease (1974) describe ININ as “investors” rather than “traders” since they are long-term minded and give little interest to short-term yields. Moreover, Lewellen et al. (1977) reveal that investors’ main source of information is through fundamental or technical analysis. Antonides and Van Der Sar (1990) argue that the perceived risk of an investment is lower if an asset has recently increased in value, consistent with Blume and Friend’s (1978) findings. Nagy and Obenberger (1994) investigate the extent to which a listing of 34 variables influence shareholders’ perception, and provide evidence of a role for a mix of financial and non-financial variables. Additionally, they found that each shareholder considers the seven different factors employed in a factor analysis in a unique way. Fisher and Statman (1997), relying on general agreement that the investment decision is a complex one, suggest that investors are not only concerned about risk and return when buying shares, but also several other parameters taken into consideration.

**THEORETICAL AND CONCEPTUAL DEVELOPMENT**

**Perceived Behavioral Control**

The control belief in TPB is represented by PERCEIVED BEHAVIOURAL CONTROL. The construct of Perceived Behavioral Control was added into the model to
answer the limitations of TRA (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980), in an effort to deal with situations where individuals may lack complete volitional control over the behavior (Ajzen, 1991, 2002). Perceived Behavioral Control is defined as, given the presence or absence of requisite resources and opportunities, the individual’s perception of the ease or difficulty in performing the behavior of interest (Ajzen, 1991). In summary, the performance of a particular behavior is correlated to the confidence of the individual in his/her ability of performing the behavior (Ajzen, 1991).

**Subjective Norm**

Subjective norm is an original construct from TRA, that deals with the influence of social environment or social pressure on the individuals and thus on behavioral intention (Fishbein and Ajzen, 1975). Subjective norm is defined as the individual’s perception of the likelihood that the potential referent group or individuals approve or disapprove of performing the given behavior (Fishbein and Ajzen, 1975; Ajzen, 1991). Subjective norm is shown as a direct determinant of behavioral intention in TRA (Fishbein and Ajzen, 1975), TPB (Ajzen, 1991) and DTPB (Taylor and Todd, 1995). The rationale to this, under significant social influence and social pressure, an individual would perform the behavior even though the individual is not in favor of performing the behavior (Venkatesh and Davis, 2000). Studies have shown mixed result regarding subjective norm as a predictor of intention. Studies have shown no significant relationship between subjective norm and intention (Davis et al., 1989; Mathieson, 1991; Chau and Hu, 2001; Lewis et al., 2003) and some studies have shown significant relationship between subjective norm and intention (Taylor and Todd, 1995; Venkatesh and Davis, 2000; Teo and Pok, 2003; Ramayah et al., 2003, 2004; Ma’ruf et al., 2003; Yulihasri, 2004; Chan and Lu, 2004; May, 2005; Jen-Ruei et al., 2006). Apart from TAM, model using the TRA, TPB and DTPB framework has shown subjective norm to have significant relationship with intention. Hence, it can be said subjective norm to have significant effect on intention to use internet stock trading.

**Attitude**

Attitude has been identified as a construct that guides future behavior or the cause of intention that ultimately leads to a particular behavior. In TRA, attitude is referred as the evaluative effect of positive or negative feeling of individuals in performing a particular behavior (Fishbein and Ajzen, 1975). The more recent definition of attitude is the degree of favorableness and unfavorableness of an individual’s feeling towards a psychological object (Ajzen and Fishbein, 2000). The two components of attitude is attitude towards physical object (internet, computer) and attitude towards behavior or performing particular action (using internet for stock trading) (Ajzen, 1987, Ajzen and Fishbein, 2005). In the field of internet stock trading the more positive the attitude an individual has towards the object and behavior, the more likely is the behavioral intention and performance of the behavior. Many studies have shown the significant effect of attitude towards intention (Rhodes and Courneya, 2003; Ma’ruf et al., 2003; Ramayah et al., 2003; Teo and Pok, 2003; Ramayah, 2004; Eri, 2004; Ramayah et al., 2005; Ing-Long and Jian-Liang, 2005; May, 2005; Ramayah and Mohd. Suki, 2006).

**Behavioral Intention**

Intention is defined as the perception of an individual towards performance of a particular behavior (Fishbein and Ajzen, 1975). In TRA, Fishbein and Ajzen (1975, pp. 288) intention is defined, “as a person’s location on a subjective probability dimension involving a
relation between himself and some action”. In TRA (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980), intention is predicted by attitude and subjective norm. Later in the extension of TRA, the TPB (Ajzen, 1985, 1991, 2002) and the DTPB (Taylor and Todd, 1995) the antecedent of intention are attitude towards the behavior, subjective norm and the degree of Perceived Behavioral Control. Meanwhile in TAM (Davis, 1986, 1989; Davis et al., 1989) the antecedents of intentions are perceived usefulness, perceived ease of use and attitude and for the integrated DTPB (Chau and Hu, 2001) the antecedents of intentions are perceived usefulness, perceived ease of use, attitude towards behavior, subjective norm and Perceived Behavioral Control.

When behavior is under the individual’s control, intention can predict actual behavior with significant accuracy (Ajzen, 1988) but this does not mean that the measure of intention and behavior is in perfect correlation (Fishbein and Ajzen, 1975). There always exists strong biasness for individuals to overestimate the likelihood of performing desired behavior and underestimate the likelihood of not performing undesired behavior. In turn this overestimates and underestimates is believed to cause inconsistencies between intention and the actual action (Ajzen et al., 2004). Behavior and intention shows high correlation if the interval time between the intention and the behavior is low (Fishbein and Ajzen, 1981).

Hypotheses
1. Perceived Behavioral Control creates positive impact towards behavioral intention
2. Subjective norm creates positive impact towards behavioral intention
3. Attitude create positive impact towards behavioral intention
4. Behavioral intention influence usage of online share trading

Methodology
Data for this study was collected through structured questionnaires. The questionnaires were distributed to dealers and subsequently passed on to investors who are aware of internet stock trading in Comibatore. A total of 234 responses were obtained from 300 questionnaires. From the 234, ten were discarded due to incomplete data giving the final response rate of 75 percent. Hence, the sample size for the study is 224.

Variables and Measurement
All instruments were adapted from various literatures and were modified for the adaptation to the internet stock trading context. The dependent variable, behavioral intention was measured using four items derived from Shih and Fang (2004). Responses were measured using five-point Likert type scale anchored by “very unlikely” (1) to “very likely” (5) with “neutral” (3) as middle point. Meanwhile for the independent variable items with five-point Likert type scale was used to measure, with scale ranging from “strongly disagree” (1) to “strongly agree” (5). Items for attitude towards behavior were derived from Shih and Fang (2004). The item for subjective norm and Perceived Behavioral Control measurement were derived from Shih and Fang (2004). The study utilized path modeling with the help of AMOS V.21 package.
MODELING INVESTORS BEHAVIOR TOWARDS PREDICTING INVESTORS
INTENTION TO TRADE ONLINE

The above model shows that perceived behavioral control, subjective Norm, and Attitude were considered as the antecedents to measure behavior intention of customers towards online share trading. The behavioral intention is considered as the mediating dimensions between antecedents and consequences of share trading, online. The model fit index like RMR > 0.05, RMSEA >0.05, GFI > 0.8, NFI > 0.8, and CFI > 0.8 were attained the required cut of criteria for the above model.

I. Regression Weights

<table>
<thead>
<tr>
<th>Hypotheses Statements</th>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Intention</td>
<td>Perceived Behavioral Control</td>
<td>.447</td>
<td>.033</td>
<td>13.637 ***</td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>Subjective Norm</td>
<td>.047</td>
<td>.036</td>
<td>1.307 .191</td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>Attitude</td>
<td>.491</td>
<td>.033</td>
<td>14.690 ***</td>
</tr>
<tr>
<td>Actual Usage</td>
<td>Behavioral Intention</td>
<td>.913</td>
<td>.041</td>
<td>22.459 ***</td>
</tr>
</tbody>
</table>
a. **Estimates**
1. When Perceived Behavioral Control goes up by 1 unit, Behavioral Intention goes up by 0.447.
2. When Subjective Norm goes up by 1 unit, Behavioral Intention goes up by 0.047.
3. When Attitude goes up by 1 unit, Behavioral Intention goes up by 0.491.
4. When Behavioral Intention goes up by 1 unit, Actual Usage goes up by 0.913.

b. **Standard Error**
1. The regression weight estimate, .447, has a standard error of about .033.
2. The regression weight estimate, .047, has a standard error of about .036.
3. The regression weight estimate, .491, has a standard error of about .033.
4. The regression weight estimate, .913, has a standard error of about .041.

c. **Critical Ratio**
1. Dividing the regression weight estimate by the estimate of its standard error gives 
   \[ z = \frac{.447}{.033} = 13.637. \]
   In other words, the regression weight estimate is 13.637 standard errors above zero.
2. Dividing the regression weight estimate by the estimate of its standard error gives 
   \[ z = \frac{.047}{.036} = 1.307. \]
   In other words, the regression weight estimate is 1.307 standard errors above zero.
3. Dividing the regression weight estimate by the estimate of its standard error gives 
   \[ z = \frac{.491}{.033} = 14.690. \]
   In other words, the regression weight estimate is 14.69 standard errors above zero.
4. Dividing the regression weight estimate by the estimate of its standard error gives 
   \[ z = \frac{.913}{.041} = 22.459. \]
   In other words, the regression weight estimate is 22.459 standard errors above zero.

d. **Result – Estimate**
1. The probability of getting a critical ratio as large as 13.637 in absolute value is less than 0.001. In other words, the regression weight for Perceived Behavioral Control in the prediction of Behavioral Intention is significantly different from zero at the 0.001 level (two-tailed).
2. The probability of getting a critical ratio as large as 1.307 in absolute value is .191. In other words, the regression weight for Subjective Norm in the prediction of Behavioral Intention is not significantly different from zero at the 0.05 level (two-tailed).
3. The probability of getting a critical ratio as large as 14.69 in absolute value is less than 0.001. In other words, the regression weight for Attitude in the prediction of Behavioral Intention is significantly different from zero at the 0.001 level (two-tailed).
4. The probability of getting a critical ratio as large as 22.459 in absolute value is less than 0.001. In other words, the regression weight for Behavioral Intention in the prediction of Actual Usage is significantly different from zero at the 0.001 level (two-tailed).
II. Covariance

<table>
<thead>
<tr>
<th>Hypotheses Statement</th>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective Norm &lt;---&gt; Attitude</td>
<td>.424</td>
<td>.054</td>
<td>7.856</td>
<td>***</td>
</tr>
<tr>
<td>Perceived Behavioral Control &lt;---&gt; Subjective Norm</td>
<td>.369</td>
<td>.051</td>
<td>7.282</td>
<td>***</td>
</tr>
<tr>
<td>Perceived Behavioral Control &lt;---&gt; Attitude</td>
<td>.441</td>
<td>.058</td>
<td>7.669</td>
<td>***</td>
</tr>
</tbody>
</table>

a. Estimate
1. The covariance between Subjective Norm and Attitude is estimated to be .424.
2. The covariance between Perceived Behavioral Control and Subjective Norm is estimated to be .369.
3. The covariance between Perceived Behavioral Control and Attitude is estimated to be .441.

b. Result – Estimate
1. The probability of getting a critical ratio as large as 7.856 in absolute value is less than 0.001. In other words, the covariance between Subjective Norm and Attitude is significantly different from zero at the 0.001 level (two-tailed).
2. The probability of getting a critical ratio as large as 7.282 in absolute value is less than 0.001. In other words, the covariance between Perceived Behavioral Control and Subjective Norm is significantly different from zero at the 0.001 level (two-tailed).
3. The probability of getting a critical ratio as large as 7.669 in absolute value is less than 0.001. In other words, the covariance between Perceived Behavioral Control and Attitude is significantly different from zero at the 0.001 level (two-tailed).

III. Correlations

<table>
<thead>
<tr>
<th>Hypotheses Statements</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective Norm &lt;---&gt; Attitude</td>
<td>.619</td>
</tr>
<tr>
<td>Perceived Behavioral Control &lt;---&gt; Subjective Norm</td>
<td>.559</td>
</tr>
<tr>
<td>Perceived Behavioral Control &lt;---&gt; Attitude</td>
<td>.598</td>
</tr>
</tbody>
</table>

a. Estimate
1. .619 is the estimated correlation between Subjective Norm and Attitude.
2. .559 is the estimated correlation between Perceived Behavioral Control and Subjective Norm.
3. .598 is the estimated correlation between Perceived Behavioral Control and Attitude.

IV. Squared Multiple Correlations

<table>
<thead>
<tr>
<th>Behavioral Intention</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.848</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actual Usage</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.693</td>
</tr>
</tbody>
</table>
a. Estimate
1. It is estimated that the predictors of Behavioral Intention explain 84.8 percent of its variance. In other words, the error variance of Behavioral Intention is approximately 15.2 percent of the variance of Behavioral Intention itself.
2. It is estimated that the predictors of Actual Usage explain 69.3 percent of its variance. In other words, the error variance of Actual Usage is approximately 30.7 percent of the variance of Actual Usage itself.

V. Indirect Effects

<table>
<thead>
<tr>
<th></th>
<th>Attitude</th>
<th>Subjective Norm</th>
<th>Perceived Behavioral Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Intention</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Actual Usage</td>
<td>.448</td>
<td>.043</td>
<td>.409</td>
</tr>
</tbody>
</table>

1. The indirect (mediated) effect of Attitude on Actual Usage is .448. That is, due to the indirect (mediated) effect of Attitude on Actual Usage, when Attitude goes up by 1, Actual Usage goes up by 0.448. This is in addition to any direct (unmediated) effect that Attitude may have on Actual Usage.
2. The indirect (mediated) effect of Subjective Norm on Actual Usage is .043. That is, due to the indirect (mediated) effect of Subjective Norm on Actual Usage, when Subjective Norm goes up by 1, Actual Usage goes up by 0.043. This is in addition to any direct (unmediated) effect that Subjective Norm may have on Actual Usage.
3. The indirect (mediated) effect of Perceived Behavioral Control on Actual Usage is .409. That is, due to the indirect (mediated) effect of Perceived Behavioral Control on Actual Usage, when Perceived Behavioral Control goes up by 1, Actual Usage goes up by 0.409. This is in addition to any direct (unmediated) effect that Perceived Behavioral Control may have on Actual Usage.

RESULT AND DISCUSSION

From the result of the model, it is understood that perceived behavioral control, Subjective norm have direct positive relationship with behavioral intention to use internet stock trading. Though attitude creates positive impact towards behavioral intention, it creates very mild impact and it is not significant with behavioral intention. The attitude is weak predictor in this study, the policy makers and top management in share trading should give more importance for attitude of the customers. Attitude plays a crucial role in acceptance of internet share trading. Favorable attitude could enhance the behavior intention and will increase the actual behavior of online stock trading. Attitude can be enhanced by providing Real-time stock prices and monitoring, portfolio management, various kind of financial planning and information, open for 24 hours a day and investors would able to acquire or sell shares or stocks from anywhere by just using internet-based order submission protocols are just a few offerings that increases the favorable attitude towards internet stock trading. By highlighting the advantages favorable attitude towards internet stock trading could be formed. And thus with favorable attitude the more likely is the actual usage of internet stock trading.

Social pressure is accepted as a construct that influences behavior intention towards internet stock trading in this study. From this study it can be concluded that internet stock trading could be increased if the investors perceive that most of the people who are important to him/her want the investor to use internet stock trading. Even though information about
internet stock trading is available, they are incomplete as the information does not address the security, privacy and many other factors, the influence of those who are relevant would have a great impact on internet stock trading usage. With the incomplete information, potential adopters would tend to rely on information from referent group or individuals as a trusted information source about internet stock trading. With positive information and social pressure potential adopters could be influenced by the referent group or individuals, the more likely is the behavioral intention to use internet stock trading.

Perceived Behavioral Control is also proven to be an antecedent of behavioral intention to use internet stock trading. Most of the investors would have some sort of experience in accessing the internet for the latest share/stock information, foreign stock market and Indian market condition, internet banking, online bill payment, online purchasing and many other forms of internet transactions. Thus, with the experience the investors have, they would feel that internet stock trading is a matter that is within their own Variable Standardized boundary of control. Thus, with high- Perceived Behavioral Control the more likely is the actual usage of internet stock trading.

The respondents mainly comprises of male (90%), and female (10% percentage). The mean (average) age of the respondents found to be between 36 years. In educational level, majority of the respondents were under graduate (52 %). Majority (54%) of the respondents uses own personal computers for their online share trading.

CONCLUSION

The main objective of this study is to identify the factors that are involved in influencing intention to use internet stock trading. From the findings it has been identified that subjective norm and Perceived Behavioral Control strongly influence investor’s intentions towards internet stock trading. Results from this study has shed some light on which constructs in the intention-based model can be better used to answer the managerial problem of factors influencing intention to use internet stock trading. The insights provided by this study could be used by organizations as a foundation to formulate strategies to increase the usage of internet stock trading.

REFERENCES


